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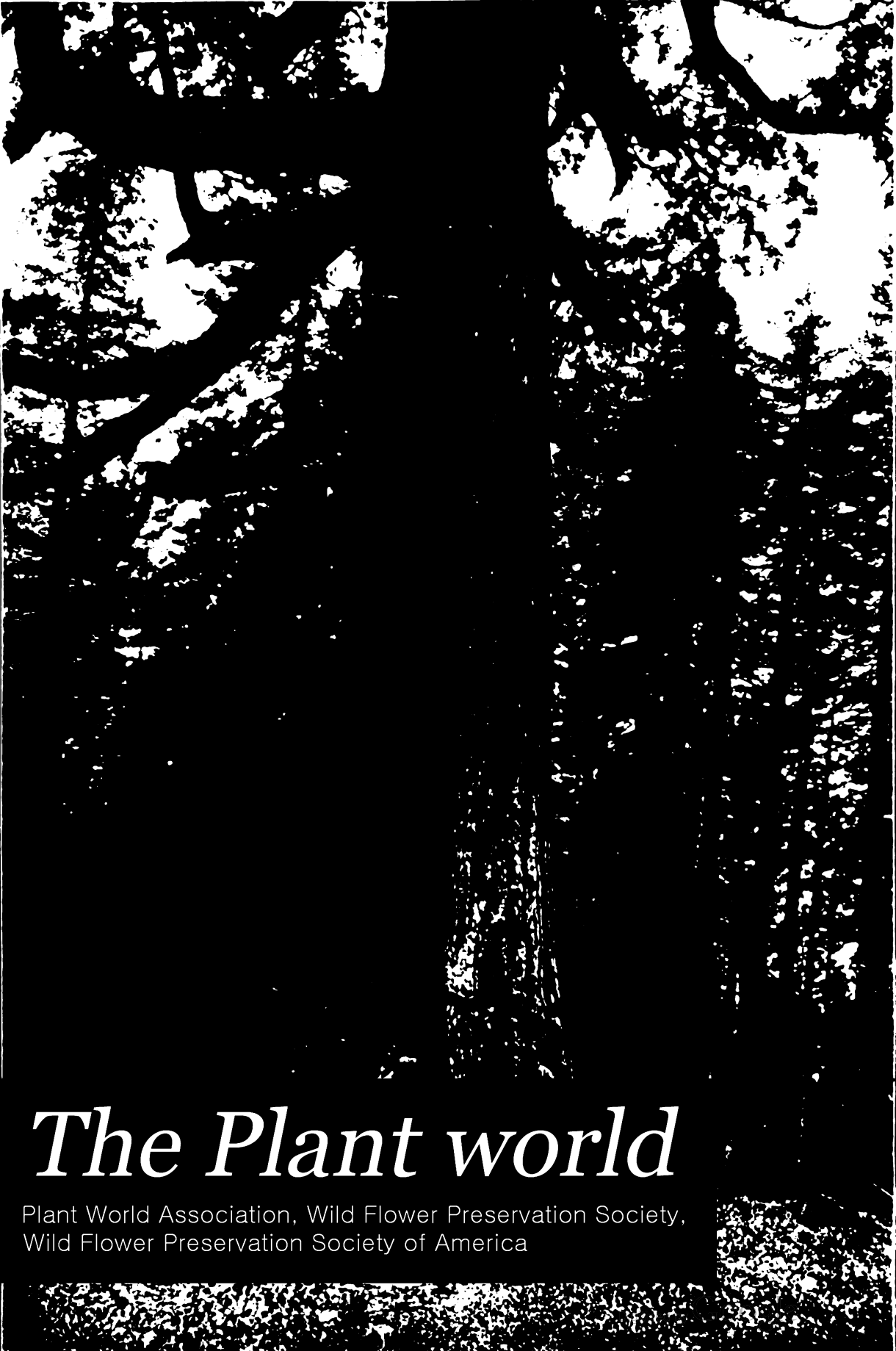

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THE PLANT WORLD

AN ILLUSTRATED
MONTHLY JOURNAL OF POPULAR BOTANY.

ESTABLISHED 1897.

EDITED BY
F. H. KNOWLTON, PH. D.,
CHARLES LOUIS POLLARD, A. M.,
CORNELIUS L. SHEAR, B. S.

VOLUME IV.

1901.
THE PLANT WORLD COMPANY,
WASHINGTON, D. C.

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Vol. IV. JANUARY, 1901. No. 1.

THE PLANT WORLD

A MONTHLY JOURNAL OF POPULAR BOTANY

EDITED BY
F. H. Knowlton, Ph.D.
Charles L. Pollard, A.M.
Cornelius L. Shear, B.S.

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THE PLANT WORLD COMPANY, WASHINGTON, D. C.

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THE PLANT WORLD.

AN ILLUSTRATED MONTHLY JOURNAL OF POPULAR BOTANY.

Established 1897.

F. H. KNOWLTON, PH. D.
CHARLES LOUIS POLLARD, A. M. } EDITORS,
CORNELIUS L. SHEAR, B. S.

BOX 334,
WASHINGTON, D. C.

Articles and Notes concerning Plants and Plant Life are solicited, and should be addressed to the Editors. Manuscripts cannot be returned unless accompanied by postage.

Business communications should be addressed to THE PLANT WORLD COMPANY, P. O. Box 334, Washington, D. C., to whom also all remittances should be made payable. Subscription price, $1.00 per year. Single copies, 10 cents. Authors' separates will be furnished, when desired, at the cost of issuance, but no separates will be printed unless ordered by author.

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While a number of the more general articles for the year will bear on the month's subject for study, there will also be contributions of wide popular interest, among the more important of which may be mentioned an address on Audubon, by Dr. Elliott Coues; letters written by Audubon in 1827; John Burroughs' list of his rare bird visitors; Frank M. Chapman's fully illustrated account of a bird-nesting expedition with this genial naturalist; Ernest Seton-Thompson's "How to Know the Hawks and Owls" (illustrated); Tudor Jenks' "From an Amateur's Point of View;" T. S. Palmer's "Ostrich Farming in America" (illustrated); F. A. Lucas' "Birds of Walrus Island," with remarkable illustrations; H. W. Henshaw's "Impressions of Hawaiian Birds;" C. Will Beebe's illustrated account of some of the birds under his charge at the New York Zoological Garden, and an important paper on "Bird Protection in Great Britain," by Montagu Sharpe, chairman of the English Society for the Protection of Birds.

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Vol. IV. JANUARY, 1901. No. 1.

SOME FILIPINO BOTANY.

By Alice Carter Cook.

THE acquisition of our island territories has enlarged the field of American science, and awakened the interest of American botanists in tropical life, for even those who may never expect to see or to specialize upon the new floras, must have some knowledge of them. Hence has arisen a demand for the literature of the subject, and conspicuous among the few books brought to light upon the natural history of the Philippines, is Blanco's monumental "Flora," published in four immense volumes at the expense of the Augustinians in 1880, and now to be obtained with difficulty for the sum of $150. It is a typical Spanish Church work, and whatever is true of the rest of it, the part of the fourth volume entitled "The Declaration of the virtue of the trees and plants which are in this land," by the parish priest, Ignasio de Mercado, Filipino, with "scientific classification" by Fra Fernandez-Villar will doubtless be found to contain many facts new to all readers, and is worthy of some attention as indicative of the high state of scientific attainment reached by the brotherhood.

The plant world of the islands has evidently followed a course quite unknown in the Western Hemisphere, and one which seems calculated to upset current theories. For example, if the seeds of calabashes "are sown without the shell, those which are formed within the fruit afterwards will be ready husked." The fruit of *Eurycles Amboinensis* "is the root," and *Tacca palmata*, which is able to preserve from the bites of serpents and beetles the one who carries the root in his hand, "has no flower nor fruit." The fruit of a species of *Anacardium* is the size of a large apple, spongy and "without seed, for this it bears outside like a great nugget."

Here is a good example of lucidity. "The Calingag and the canela are the true cinnamon, and, meanwhile, the finer is the better. The

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tree of the Calingag is like that of the canela so that between the two there is no more difference than that the canela is fine and the Calingag of the mountain. But, in reality, of a truth, the canela, I speak of the Calingag, is canela, although coarse, and has the effects of the genuine and fine." Anyone should certainly be able to recognize these two varieties on first sight.

Mercado was evidently a man of broad sympathies and philosophic tendencies. Witness the following, and may it be remembered by our own tree-carvers. "For an unfortunate tree we hold the Calumpang; after having received benefits from its branches and leaves, men despise it. I say this because if the sun is hot they use the shade of the Calumpang, if it rains they do the same, if they are hungry beneath it they eat and the recompense that it finds from the passers by is that all hack its trunk, as if it were a crime to have comforted with its branches the thankless ones who come to use them when exhausted by hunger or weariness or because the skies are threatening or too intense."

In the same musing strain he speaks of *Pittosporum:* "There are some things which have a bad face and good works and others the contrary. And also there are others which are throughout good or bad. This Mamalis is beautiful inasmuch as it puts out its branches each one like a palm. Now we do not know whether it is beautiful in its properties; that depends on how one wishes to use it; because the bark of the root which looks towards the east makes a good plaster for stomach-ache," but causes great injury to certain persons. Again *Barleria* has flowers provided with numerous tiny, hurtful spines. "Of them we might say that they have good face and bad works, like some women."

The peculiar power, mentioned above, of the parts of the plant which face the rising sun is repeatedly referred to, and to the same class of facts belongs this, that the root of *Smilax China*, "which God created here," plucked when the moon is on the increase, is an even better remedy for pains, tumors, etc., than the celebrated Palo de China, which "rots the bones." Let them that do not believe this "take from the sepulchre one who has been cured by the Palo de China and they shall see all his bones rotted."

A marvelous example of magic attributes is contained in the story of a French monk who in 1658 cured a native supposed to be suffering from dropsy, by administering the powdered fruits of *Quisqualis* until he was relieved of a worm "26 yards long and of the thickness of a toston (shilling), all tubular like a reed or more like a cane." Seeing that he was still not well, the same remedy was continued until the appearance of a second parasite 14 yards long. "From this case we

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conclude that Pinones are a very efficacious counteractant against poison, for this Indian was undoubtedly bewitched." The powdered root of *Aristolochia* may be also used in drink as an antidote to enchantment if the body be afterwards rubbed with a mixture of the same powder and other herbs.

Our respect for the abilities of plants cannot but be increased by the study of this work. Saffron (*Carthamus*) has so great power that, placed in the hand, it penetrates immediately to the heart. A little bag of it put on the stomach keeps one from breakfasting, and "it is certain that if given to drink in quantity it despatches from this life to the other the patient who dies at once and laughing." The seeds of *Datura metel* act like laughing gas, keeping one unconscious for a long time, "laughing, weeping, sleeping, speaking and answering while in reality ignorant of what he does." The antidote is the root itself gathered on the side which faces the east.

The water in which Romero (*Rosmarinus*) has been boiled prevents wrinkles, and is a "most healthful bath, cleansing the body from all weakness, pain, weariness, melancholy, sorrow and anxiety, preserving the strength and enlivening all the members and feelings and who uses it twice a month and sweats need fear no infirmity."

He who takes the "holy plant," *Artemisia grata*, with him when walking, will suffer no ill from the sun nor from the moon.

The sacred quality of certain plants and divine interposition in their use as medicines, are commonly spoken of. *Diospyros* is recommended for a certain skin disease if it be newly developed, but if it be of long standing, "only God our Lord will be able to take it away." The leaves of *Fleurya* applied to the pulses of one who has chills, will effect a cure in five days "by the help of God." Of *Asparagus officinalis* we are told, "blessed be God who created this plant for the aid of the poor." "It suffices for the praise" of *Brassica* that Christ our Lord compared "the holy Faith, living and pure, to the grain of mustard. But, nevertheless, we will mention here, for our advantage, some properties and virtues of this seed according to Pliny, Dioscorides and Avicena."

We clearly have much to learn of the properties of common articles of food. For example, "He who eats the least of melons is the best off for they are all congealed water and without sustaining power." Very ripe guavas are a healthful food, and two of them should be eaten after a meal, for they aid digestion, "tightening the mouth of the stomach so that its natural heat connot escape and making the food sink to the bottom of it." We have been accustomed to think of Spanish garlic as vigorous, but hardly to the extent here asserted: "He who eats a

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raw ajo (*Allium sativum*) will break a bottle by blowing upon it immediately afterwards."

The medicinal value of many plants is truly marvelous, and their explanation equally so. Cane sugar given in cold water is more refreshing to one who has fever than water alone. The "reason for the water's appearing more refreshing with it is that since it is so tempered it converts itself immediately into the nature of him to whom it is given; and as it receives into itself the coldness of the water because of its spongy substance, the coldness of the latter is more felt with it than when taken alone, by the consistency of the body of the sugar itself."

With the powdered leaves of *Artocarpus integrifolius* penitents are cured, also pimples and spasms.

A native carpenter cut a toe with a hatchet so that it merely hung by the skin. The bark of the root of *Ficus altimaloo* having been applied, he returned to work on the following day, the toe healed without swelling or pain. The tree is, by the way, disliked by planters, since it often breaks down walls in its growth. The only way to kill it is said to be to cut off the branches and insert the spines of certain fish in the wounds.

Kalanchoe is another invaluable healer. If the head of a chicken be cut its whole length with a sharp knife which has been rubbed with the juice of this herb, and afterwards both parts of the wound be again anointed with the same juice, "within a Credo" the fowl will revive as if nothing had happened.

A general rule for the application of medicines speaks volumes for the trust of the physician in the common sense of the average Filipino patient. It is preceded by reference to a saying of Laguna's that every kind of sour herb may be used as a substitute for sorrel. "I say this because there are some so manacled that not having the very thing of which the book teaches them, they do not know how to avail themselves nor how to put out the hand to another fit and equivalent thing in its place." "On this account every time that there is to be found a thing equivalent in the essential particular, according to the good counsel of the reason it should be used. For example, if for a swelling, a plaster of habas be ordered when there are none, then use the flour of frijoles, or gulay Patnai, for all these seeds are, in the most essential, of the quality of habas. * * * The same is to be considered in all things which should be applied in the place of something else."

A part of the dissertation on Agarics may be quoted for the encouragement of the modern student who is perplexed by the apparent multiplicity of species of the genus: "The Agaric is some mushrooms which arise on the trunks of old trees and are so hard that they appear to be wood. There are white and black. The transparent is the bet-

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ter and the most spongy and light." Then follows an enumeration of its virtues, the powder being "one of the greatest medicines there is," and to the conclusion we should like to call the attention of homeopathists: "This may be given as a general rule for the application of all remedies, 'in sicknesses and indispositions of a hot nature, things naturally cold should be used; and in cold, things hot; because every infirmity is cured by its contrary.'"

HINTS FOR BEGINNERS IN THE DETERMINATION OF GRASSES.

By. C. F. Saunders.

THE average botanical amateur is apt to fight shy of the grasses, as a family either too poor in interest or too full of technical difficulties to warrant his spending time upon them. Nevertheless, grasses are well worth the student's attention, if for no other reasons than the immense value they are to mankind, and their wide distribution in the earth; and when once he comes under the spell of their fascination, he will find in their study a variety of structure and a beauty of form and texture that will be as a new world to him.

The technical difficulties, so far as the thousand species of United States grasses are concerned, are far less than most beginners suppose, and if one have good eyesight, he need experience no serious trouble in the determination of his collections, except in the case of a very few genera, like *Panicum*, for instance, about which even experts find cause for disagreements. It is true, the smallness of the flower-parts in many species makes discrimination and care particularly needful, but this very fact increases the disciplinary value of their study, and adds zest to the hunt.

The following suggestions to beginners in the determination of grasses are offered by the writer with a lively recollection of his own first futile attempts, which were finally directed into easier channels by a kind friend whose method was about as follows:

Buy for about fifty cents at any store where botanical supplies are kept, a small double lens of 8 or 10 diameter power, with adjustable focus, set upon a tripod. At the same place get two dissecting needles with long handles; or, instead of these latter, you can, by sinking an ordinary needle in the end of a wooden penholder, provide yourself with a good enough substitute. One needle should be sharp and the other blunt for holding the object in place. Then, with a child's common slate (which, being black, is restful to the eye, besides throwing

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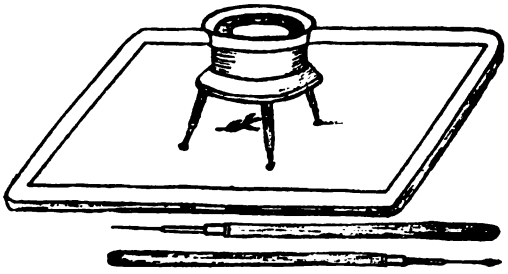

Inexpensive outfit for determining grasses.

the object examined into strong relief) for an operating table, you are ready for the fray.

Grasses, unlike carices, are in best condition for working up when they are in flower, and if collected then, you may use your pleasure about studying them at once or laying them aside until a more convenient time, as, for instance, winter time. When ready to examine the specimen, break off a spikelet or two, and lay them on the slate under the field of the tripod lens; then applying your eye to the lens, and with a dissecting needle in each hand to manoeuvre the spikelet, you will have little difficulty in dividing part from part and noting thoroughly all the characteristics. A pocket lens will, of course, be the readiest means of examining other characters than those of the flowers.

Admirably arranged keys to genera and species are given in Britton and Brown's Illustrated Flora, which reduce to a minimum the difficulties of hunting down the name. Students will also find much that is helpful in F. Lamson-Scribner's illustrated publications on American Grasses, issued as Bulletins No. 7 and 17 of the United States Department of Agriculture, Division of Agrostology.

Philadelphia, Pa.

The botanical department of the Iowa State Agricultural College and Experiment Station suffered severely from the effects of a disasterous fire a few weeks ago. More than two-thirds of the general collection, including many valuable duplicates, was burned, and most of the microscopes and other laboratory apparatus were destroyed. Fortunately the herbarium of the late C. C. Parry, which is of great importance to botanists on account of the types which it contains, was saved. Dr. Pammel will have the sympathy of all scientists in the loss of so much material, accumulated after years of hard work.

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THE THREATENED DESTRUCTION OF THE BIG TREES OF CALIFORNIA.

BEFORE the glacial period the genus of big trees called *Sequoia* flourished widely in the temperate zones of three continents. There were many species, and Europe, Asia and America had each its share. But when the ice fields moved down out of the north, the luxuriant vegetation declined, and with it these multitudes of trees. One after another the different kinds gave way, their remains became buried, and when the ice receded, just two species, the Big Tree and Redwood, survived. Both grew in California, each separate from the other, and each occupying, in comparison with its former area, a mere island of space. As we know them now, the Redwood (*Sequoia sempervirens*) lives only in a narrow strip of the Coast Range, 10 to 30 miles wide, extending from just within the southern border of Oregon to the bay of Monterey, while the Big Tree (*Sequoia Washingtoniana*) is found only in small groves scattered along the west slope of the Sierra Nevada mountains, from the middle fork of the American river to the head of Deer creek, a distance of 260 miles. The utmost search reveals but ten main groups, and the total number of sizable trees in these groups must be limited to figures in the thousands. It is, moreover, the plain truth, that all the specimens which are remarkable for their size, do not exceed 500.

The Big Trees are unique in the world—the grandest, the largest, the oldest, the most majestic, graceful of all trees—and if it were not enough to be all this, they are among the scarcest of known species, and have the extreme scientific value of being the oldest living representatives of a former geologic age. It is a tree which has come down to us through the vicissitudes of many centuries, solely because of its superb qualifications. Its bark is often two feet thick, and almost noncombustible. The oldest specimens felled are still sound at the heart, and fungus is an enemy unknown to it. Yet with all these means of maintenance, the Big Trees have apparently not increased their range since the glacial epoch. They have only just managed to hold their own on the little strip of country where the climate is locally favorable.

At the present time the only grove thoroughly safe from destruction is the Mariposa, and this is far from being the most interesting. Most of the other groves are either in process of, or in danger of, being logged. The very finest of all, the Calaveras Grove, with the biggest and tallest trees, the most uncontaminated surroundings, and practically all the literary and scientific associations of the species connected with it, has been purchased recently by a lumberman, who came into full possession on the 1st of April, 1900. The Sequoia and General Grant

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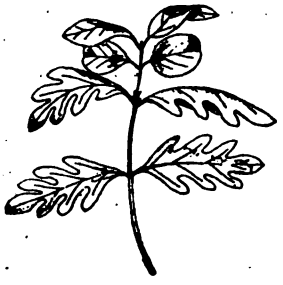
National Parks, which are supposed to embrace and give security to a large part of the remaining Big Trees, are eaten into by a sawmill each, and by private lumber claims amounting to 1,172 acres. The rest of the scanty patches of Big Trees are in a fair way to disappear—in Calaveras, Tuloumne, Fresno and Tulare counties they are now disappearing—by the ax. In brief, the majority of the Big Trees of California, certainly the best of them, are owned by people who have every right, and in many cases every intention, to cut them into lumber.

The lumbering of the Big Tree is destructive to a most unusual degree. In the first place, the enormous size and weight of the trees necessarily entails very considerable breakage when one of them falls. Such a tree strikes the ground with a force of many hundreds or even thousands of tons, so that even slight inequalities are sufficient to smash the brittle trunk at its upper extremity into almost useless fragments. The loss from this cause is very great, but it is only one of the sources of waste. The great diameter of the logs, and, in spite of the lightness of the wood, their enormous weight, makes it impossible to handle many of them without breaking them up. For this purpose gunpowder is the most available means. The fragments of logs blown apart in this way are not only often of wasteful shapes, but unless very nice judgment is exercised in preparing the blast, a great deal of the wood itself is scattered in useless splinters. This waste, added as it is to the other sources of loss already mentioned, makes a total probably often considerably in excess of half the total volume of the standing tree; and this is only one side of the matter.

From Bulletin 28, of the Division of Forestry, U. S. Department of Agriculture.



It is a well known fact that there is often great variation in the leaves that may be selected from the same tree, or even from the same branch, but we do not recall having seen quite so striking differences as are exhibited in the specimen here figured. This specimen is a twig from the common Japanese honeysuckle (*Lonicera Japonica*) and was sent in by Dr. Charles A White, of Washington, D. C. He also sent a number of separate leaves, all taken from the same plant, showing a range from perfectly circular to ovate and narrowly linear, and from entire to deeply lobed. Three distinct types are shown in the little branch figured.—F. H. K.

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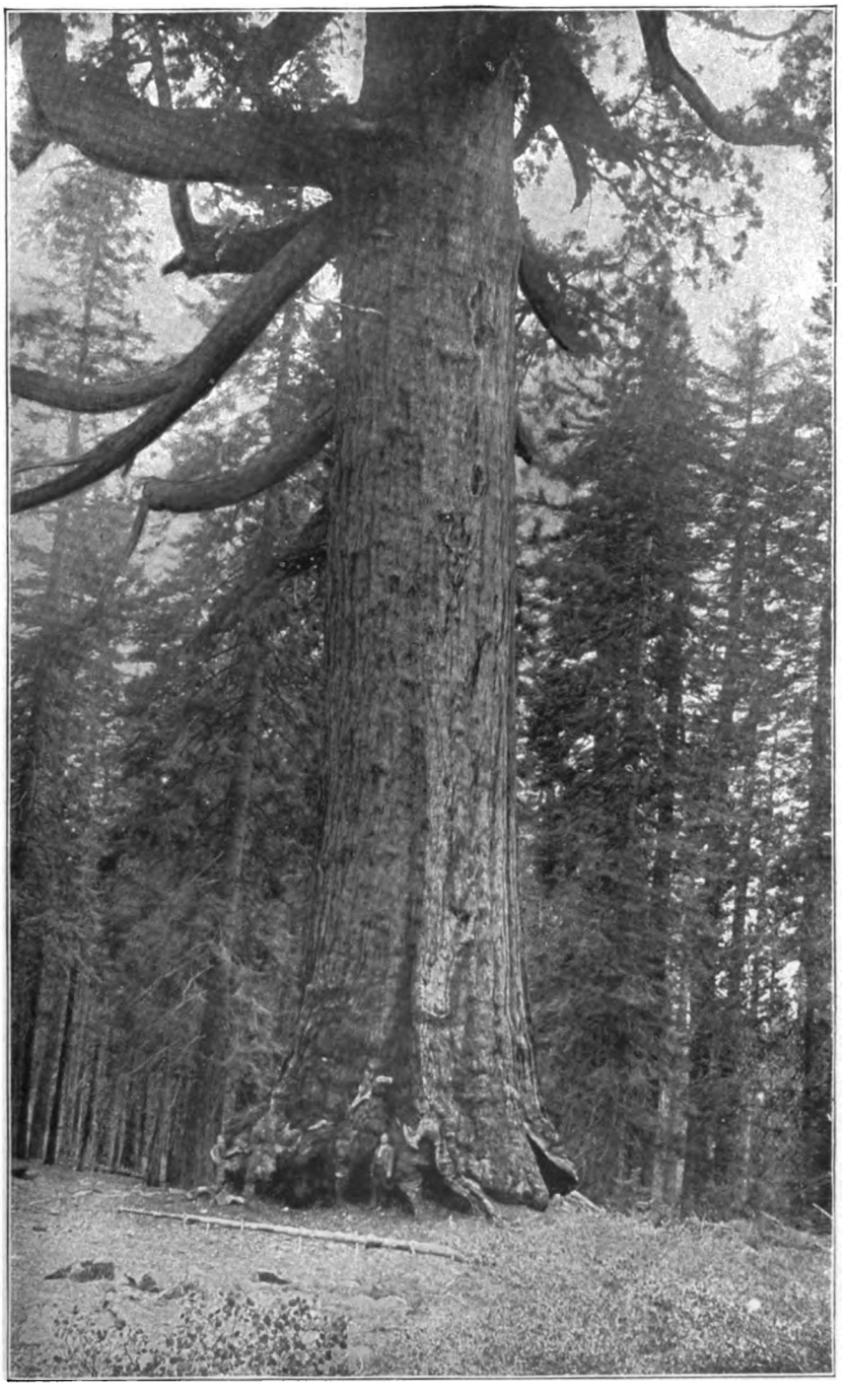

The giant *Sequoia* of California.

After Pinchot, Bulletin No. 28, Division of Forestry, U. S. Department of Agriculture.

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THE ROSY TRICHOLOMA.

(*Tricholoma rubicunda* Peck.)*

By E. M. Williams.

WHILE the boundary lines of the genus *Tricholoma* are hard to define, the typical species are well marked, have much in common, and are not difficult to separate from those of other genera. In general they may be said to be quite fleshy, more so than in any other genus of the gill-bearing fungi, though among the many species some may be found that are slender, and some of diminutive size. Most of the species have firm, and a few have tough flesh. The stems are generally stout, the gills numerous, often crowded and sinuate behind. Theoretically the gills must always have more or less of a sinus to belong to this genus, but a few species in which the sinus is almost if not quite wanting, are admitted because of very evident relationships in other respects. The stem is usually stout, and though in some instances quite tough, it is but little firmer in texture than the rest of the plant, and is in all species without a tough, bark-like outer skin. Neither volva nor annulus is to be found upon the stems of the Tricholomas. Variations from this rule, so far as the veil is concerned, are to be rarely met with, the species illustrated in the acompanying plate being one of these exceptions. This species, which for the present we shall designate as *Tricholoma rubicunda* Peck, has generally been considered identical with the European plant (*Tricholoma russula* Shaeffer). *Tricholoma russula* was originally described as follows: "Est fungus bicolor, solitarius, farcatus, carnosus, varius; pileo ab initio globoso, post convexo, denique infundibuliformi, subtiliter punctato; petiolo crasso, ad basin saepe tuberoso; velo, annulo, * * * nullo."†

In 1873 Professor Peck described a fungus under the name of *Tricholoma rubicunda* which differs from this in several respects, particularly in being tomentose on the margin, and in having lamellae close, sometimes forked, etc. In a later report‡ he refers the plant to the European species, quoting Fries' description, omitting any refer-

* Tricholoma rubicunda Peck. Pileus convex, then expanded or centrally depressed, viscid, slightly tomentose on the margin when young, smooth or sometimes with a few scales either on the disk or on the margin, red; lamellae close, white, becoming spotted with red, some of them forked; stem firm, equal, solid, slightly pruinose, white, often stained with red; spores .00028 x .00016 in. Plant 3-5 in. high, pileus 3-5 in. broad, stem 6-8 lines thick. Ground in woods. New Scotland, Albany county, Oct. The plant is rarely cespitose. The thin cuticle is separable. The color is suggestive of species of *Russula.—26th Rep. N. Y. State Museum, p. 51, 1873.*

† Fung. Bav. et Pal. No. 51, *pl. 58.*

‡ 44th Rep. N. Y. State Mus. 42.

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ence to the tomentose margin and forked gills, and being apparently satisfied that the plants are identical.

Three years ago the writer found a number of plants of what seemed to be a puzzling species of *Tricholoma* and made notes and a drawing which is reproduced in the accompanying figure. The notes are as follows: "Pileus 2-3 in. broad, slightly viscid, white or pinkish, streaked and spotted with red, rounded at first, becoming plane or centrally depressed, inflexed at first, finally expanded and often irregularly cracked and broken. Flesh white, pink under the cuticle, firm, brittle, with a pleasant taste and odor. Gills adnate when young, slightly decurrent when old, narrowed at both ends, rather crowded, occasionally forked, brittle, white, often spotted or blotched with red. Stipe 1-3 in. long, white, clothed with white or reddish fibrils and streaked or spotted with red, generally even, sometimes bulbous and sometimes attenuate, often clothed at the base with a white mycelium. In young specimens a veil is present which is somewhat fibrous as in *Cortinarius* but of a little firmer texture than is common in that genus. This veil is white or reddish and soon disappears. Spores elliptical. Found in mixed woods on high ground in Rock Creek Park, D. C., Nov. 21, 1897." It has been found several times since in similar locations about Washington, and seems to be fairly common. It is sometimes solitary, when the individuals attain considerable size, but more often occurs in clusters sometimes containing nearly a dozen individuals. It is quite a late species, seldom occurring before the latter part of September, and continuing from that time till frost. Dried plants sent to Professor Peck were said by him to be identical with his New York plant, first described as *T. rubicunda*, and later referred to Shaeffer's species.

It seems hardly likely that a plant so well known in Europe would have such an important character as the presence of a veil, even though an evanescent one, overlooked by so many botanists. Our plant has not been so thoroughly studied, but nearly all the descriptions which have come under my observation, mention the tomentose margin of the pileus, which indicates that the veil may be present. Capt. McIlvaine* lists the plant, and quotes Professor Peck's later description, adding that the margin is often downy, that the margin is frequently cracked in both young and old plants, that the apex of the stem is often not squamulose, and that the interior of the stem is fibrous and has fibrous connections with the cap of a very marked character. His plate would also indicate that the gills were somewhat forked. In Bulletin No. 5 (1897) of the Boston Mycological Club, *Tricholoma russula* is listed

* One Thousand American Fungi, 65.

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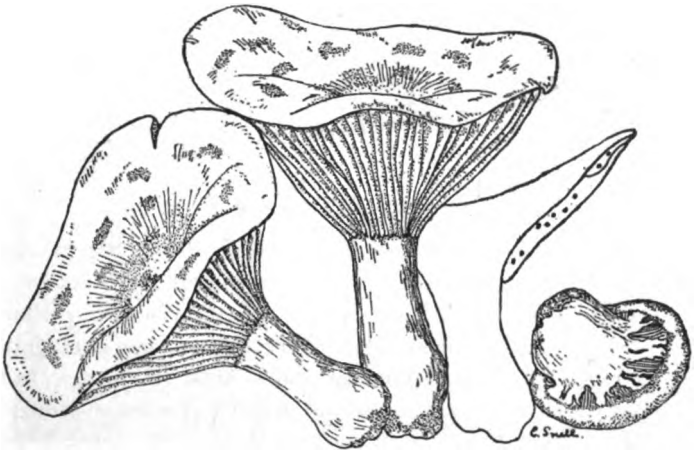

The Rosy Tricholoma (*Tricholoma rubicunda* Peck).

among the edible species of the genus, but the description is very brief, and sheds no light on the characters in question. In view of these apparent discrepancies, it seems well, for the present at least, to retain for our American plant the name originally given it by Professor Peck.

However our plant may differ from the European one, it can scarcely be inferior in flavor, since it is one of the best we have. Being a clean, large-sized fungus, it is easily prepared for cooking. It is excellent fried with a little butter in a very hot skillet.

Washington, D. C.

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BRIEFER ARTICLES.

The Canadian Pleistocene Flora.

Professor D. P. Penhallow, of McGill University, has recently published (British Association for the Advancement of Science, 1900) a short but exceedingly interesting report on the Canadian Pleistocene flora. It presents the final results of investigations that have been carried on for many years regarding the plants that grew in Canada before or after the various ice invasions, or in Pleistocene time. Plants from eighteen special localities have been studied, ranging from Manitoba to Cape Breton, and particular attention has been directed to those from at least twelve locations, chiefly from the vicinity of Toronto. Eighty-three species in all have been detected, only one—a species of maple—being now extinct. The remains are mainly in the form of seeds, but leaves, twigs, and wood have also been found. They belong to plants common in some portion of Atlantic America at the present time, such as balsam fir (*Abies balsamea*), sugar and mountain maples (*Acer saccharum* and *spicatum*), papaw (*Asimina triloba*), water-shield (*Brasenia*), sundew (*Drosera rotundifolia*), Equisetums (*limosum, scirpoides* and *sylvaticum*) white, blue and black oaks, huckleberry (*Gaylussacia resinosa*), cedar (*Juniperus Virginiana*), tamarack, osage orange, black and white spruces, white pine, sycamore, oaks, of seven species, locust (*Robinia Pseudacacia*), willow, yew (*Taxus Canadensis*) arbor-vitæ, basswood, elms (*Ulmus Americana* and *racemosa*), cat-tail, blueberry (*Vaccinium uliginosum*), etc.

From a study of these plant-remains, Professor Penhallow concludes that in the region of Toronto during Pleistocene times there were at least two distinct periods, characterized, on the one hand, by a climate equivalent to that of the middle United States at the present day, and, on the other hand, a climate equivalent to that of northern Quebec and Labrador.

We know almost nothing of the Pleistocene flora of the United States, and a rich field is open to any one who has the time and opportunity to undertake its study.—F. H. K.

An Unusual Flower.

The accompanying picture represents the flower of a tropical plant not uncommonly cultivated in greenhouses. As it is somewhat pecu-

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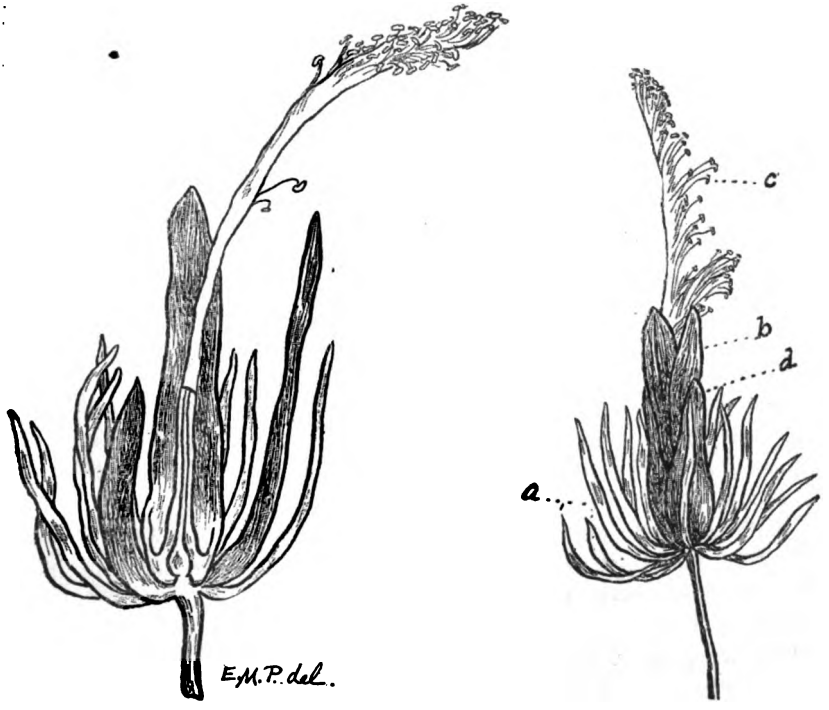

liar in structure, we have indicated the various parts by letters, and would be glad to receive guesses from our readers as to the names of these parts, and the botanical name of the family to which the plant belongs. The bodies designated by *a* are bright crimson in color; those at *b* and *d* are dull purplish-brown; while the fringe-like structure at *c* is pale flesh-color. The left hand figure represents the same flower in longitudinal section.

We will publish in our next issue the names of all those who send correct answers to the questions specified above.

The red squirrel is not at all particular in his taste for nuts. A hoard examined under a tree near Alexandria, Va., was found to consist of the nuts of three species, *Juglans nigra*, *Juglans cinerea*, and *Hicoria glabra*, the butternut, black walnut, and bitternut, mixed in about equal proportions.

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THOMAS A. WILLIAMS.

WE have already made brief announcement in these pages of the death of our late associate, Thomas A. Williams, and we had expected to present a biographical sketch, with portrait, in this issue. But it has been determined by the former stockholders of the *Asa Gray Bulletin*, now united with this journal, that the concluding issue of Volume VIII, delayed in publication by the editor's death, should fittingly take the form of a memorial to Mr. Williams, and we therefore merely publish at this time the various resolutions adopted by the scientific and other organizations with which he was connected.

[Ed.]

BY THE WASHINGTON BOTANICAL CLUB.

The members of the Botanical Club tender their heartfelt sympathy to the family of our late friend and fellow-member, Mr. Thomas A. Williams, in whose untimely death botanical science has suffered an irreparable loss.

We have each felt his death to be a personal loss. As a friend we found him steadfast, with a kindly indulgence to the faults of others, and a constant endeavor to do the best he could under all circumstances.

His work as a botanist has been fruitful in results, and promised to be still more so in the future. As a worker in Economic Agriculture in the Department, he opened up new lines, and laid a foundation upon which others will build.

As a Club we shall feel the loss of his suggestions and his criticisms, always given in a kindly way, and always helpful, because of his broad knowledge of botany.

Mr. Williams was one of the charter members of the Botanical Club, and to his counsel the Club owes much of its success.

C. L. SHEAR,
J. G. SMITH,
A. J. PIETERS,
Committee.

BY THE WASHINGTON BIOLOGISTS' FIELD CLUB.

WHEREAS, We have learned with sorrow and a sense of deep personal loss of the sudden death of our fellow-member, Thomas A. Williams,

Resolved, That the Standing Committee of the Washington Biologists' Field Club voices the feeling of every member in paying tribute to the memory of Mr. Williams, whose gentle and kindly disposition, charming good-fellowship and sterling qualities, endeared him to every

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one of us. We recall with pleasant remembrances his interest in the work of the Club and its social relationships, as well as the many delightful hours spent with him in the field. We extend our heartfelt sympathy to Mrs. Williams in this the hour of her great bereavement, which we hope may be lightened by the thought that he passed away in the same peaceful and tranquil spirit in which he had lived.

Resolved, That a copy of this tribute be sent to the family of the deceased, and that it be published in "The Plant World," of which he was an editor, and in "Science."

By direction Standing Committee, Washington Biologists' Field Club.

CHARLES LOUIS POLLARD,
Chairman.

BY THE EMPLOYES OF THE U. S. DEPARTMENT OF AGRICULTURE.

It is with feelings of profound sorrow and regret that we, the employes of the Department of Agriculture, learn that death has removed from among us our beloved companion and co-worker, Thomas A. Williams, a classmate and intimate associate of many of our number. His broad knowledge of scientific matters, his keen appreciation of nature, his kind and forbearing disposition, has endeared him to all. He was known to his associates as an indefatigable worker and investigator.

Resolved, That in the death of Professor Thomas A. Williams, science and agriculture have suffered a great loss, and we, his associates, a dear friend, whose self-forgetfulness in his kindly consideration for the feelings of others, and uniform cheerfulness, often under conditions of severe physical suffering, revealed a lovable character of the highest Christian type. The loss to the Division of Agrostology is irreparable. In the performance of his official duties he has proved himself an excellent executive, and an organizer of unusual merit, and his relations with his associates in office were always such as to command the highest esteem and respect. He never shirked a duty, and however difficult the undertaking, the work performed by him was done most creditably. His loss will be felt most keenly by his associates in the Division, and his memory will remain with them as one whose exemplary life and steadfastness of purpose they should strive to emulate.

Resolved, further, that we tender to his bereaved family our heartfelt sympathy in their great loss, and invoke for them the blessing of the Heavenly Father, who alone can heal the broken heart, and give lasting comfort.

Committee on Resolutions for the Department of Agriculture.

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EDITORIAL.

At the beginning of a new year and a new century, it is perhaps appropriate that we should discuss the outlook for that particular branch of natural science to which THE PLANT WORLD is devoted. At no time in the world's history has botanical activity been so great as now, and a very large proportion of this activity has been developed during the last quarter of a century. Within this period we have seen botany take its place in our educational institutions, side by side with sister sciences, and we have noted the increase in facilities from a few hours perfunctorily spent on "analyzing" plants, to elaborate courses maintained with the aid of perfectly equipped laboratories. But we are also witnessing, it would seem, the passing of the old-time naturalist, and are becoming simply a race of pronounced specialists. Many students of the present generation are apparently content to spend their lives in the orientation of the "spindles" in a single cell, and have, or profess to have, a profound contempt for the plant as a whole. While not for a moment underestimating the value of a knowledge of all vital phenomena, and the importance of even minute investigation, we question whether it is wise to pursue this narrow line of research to the exclusion of more general study. Equally unwise is the course of the systematist who carves out new species to order from any collection submitted to him, and who ignores all the problems of plant growth and plant physiology. Yet it should not be forgotten that the study of taxonomy is, or theoretically should be, the highest type of botanical research, for it is the systematist who seizes upon the isolated facts of cytology, morphology, ecology, ontology and a dozen other "ologies," building them into a more and more complete and compact presentation of scientific knowledge. Each of these branches is, of course, of great importance, but let us not confuse the individual wheels of a machine with the connected whole. It has come to pass that in the majority of cases, botanists having a speaking acquaintance with the plants of their respective regions are almost entirely amateurs, so-called. This should not be. The latter-day scientist of the twen-

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tieth century should not lay pleasing unction to his soul that he has satisfied the requirements of the age, unless, in the words of the old maxim, he knows "everything of something, and something of everything."

THE PLANT WORLD dons new robes in honor of its entry into the twentieth century and the fourth year of its existence. Our recent acquisition of the property and good-will of the *Asa Gray Bulletin* together with a substantial increase in our subscription list during the past year, has made it possible for us to enlarge the journal by four pages, and to print it upon a superior quality of book paper manufactured especially for us. The attractive new cover, designed by Mr. John H. Pellen, an artist of the U. S. Geological Survey, will be appreciated by all our readers. Mr. Cornelius L. Shear, who has joined our editorial board, will take active charge of the cryptogamic department, which he hopes to develop materially during the present volume.

THE PLANT WORLD has never been a money-making enterprise, and it is intended by the management that profits shall be at once invested in a betterment of the magazine until it reaches our ideal of usefulness and effectiveness. At the same time, business judgment and sound common sense both require that any commercial undertaking should at least be self-paying, and we must secure additional subscribers before that condition can be accomplished. The continued success of THE PLANT WORLD therefore depends upon two things: first, an increase in the subscription list, and second, a copious supply of literary contributions, so that the editors may not be hampered in making judicious selections. On another page we make some very tempting offers to new subscribers, and we ask those who receive this issue of THE PLANT WORLD to circulate it freely among their friends, calling attention to our advertisement, and to the fact that a sample copy will be sent to anyone upon receipt of a one-cent stamp.

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NOTES ON CURRENT LITERATURE

Mr. Geo. B. Sudworth, of the Division of Forestry, U. S. Department of Agriculture, has just issued under the title of *The Forest Nursery*, a very valuable pamphlet containing full directions for collecting and growing tree seeds of all kinds. Just at present, when forestry is assuming such importance, this little book comes as a welcome addition.

The December number of the *Bulletin of the Torrey Botanical Club* contains, among other things, a list of the species in a small collection of Alaskan pteridophytes by Mr. Wm. R. Maxon. The collection comes mainly from the vicinity of Cape Nome, and embraces 24 species, one of which, *Dryopteris aquilonaris*, is new to science. This new species is nearest to *D. fragrans*, but is less rigid, the lower pinnae not reduced gradually, and there are fewer, much more dissected pinnules.

The Tenth Annual Report of the Wyoming Experiment Station contains a list of the cryptogams of Wyoming. This is the first list of any importance from this State. The list is necessarily far from complete, as it will require many years of careful and thorough collecting to exhaust the resources of the State in this direction. The mosses, lichens, and rusts are best represented. Much of our great West is *terra incognita* so far as its cryptogamic flora is concerned, and any effort to increase our knowledge of it is to be commended.—C. L. S.

In the December number of the *Bulletin of the Torrey Botanical Club*, Professor Chas. H. Peck describes a number of new species of fleshy fungi, among which are two Amanitas. One, *Amanita radicata* Peck, is evidently a plant which is not rare about Washington, but has heretofore been referred to *A. strobiliformis* and *A. solitaria*. The other species, *A. submaculata*, we fear is not sufficiently described to be determined with certainty, though whitish stripes or spots on the dark brown pileus are said to make it easily recognizable.—C. L. S.

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GENERAL ITEMS.

One of the botanical features of the Pan-American Exposition at Buffalo next year will be the exhibit of vegetable food-products in all stages, from the plant itself to the prepared article of commerce. In the conservatories there will be an interesting exhibit of growing spice-yielding plants from North and South America.

A new technical journal of botany, to be issued at irregular intervals like Professor Greene's *Pittonia*, has been started by Mr. A. A. Heller, of Lancaster, Pa. It is called *Muhlenbergia*, in commemoration of the Pennsylvania botanist of that name, who was a contemporary of Pursh, Nuttall and Torrey. The first issue, which appeared some weeks ago, is devoted entirely to a list of new combinations which Mr. Heller had found it necessary to make for his Catalogue of North American plants.

There is usually less systematic activity in dealing with the ferns and fernworts than with any other group of plants, the generic and specific lines in this group being in general rather closely drawn, and the limitations and variations well understood. Within the past few months, however, there has been more activity among our friends the pteridologists, and we note that within a very short period new North American species or subspecies have been proposed in the genera *Dryopteris*, *Polypodium* and *Asplenium*, not to mention the elaborate studies of *Isoetes* carried on by Mr. A. A. Eaton, the preliminary results of which appear in one of the "Fernwort Papers," recently published.

An interesting series of experiments on the effect produced upon germinating plants by various alkaline solutions, is being prosecuted by the Department of Agriculture. It is found that up to a certain point, the salts act as a tonic; with solutions of greater strength they have a toxic effect, and ultimately cause the death of the seedling. This line of study becomes interesting when considered in connection with the vegetation of the alkali plains in the West, where there is often a very high percentage of salt in the soil.

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these plant is given, beginning with Linnaeus, who included them in his genus *Mucor*. The connection and relation between host and parasite are discussed, and some interesting data regarding distribution given. Some curious instances are given of species described as occurring on plants upon which the fungus did not originate, its presence being apparently accidental. The author thinks these instances may be accounted for in some cases by the rubbing together of dried specimens, or the repeated use of the same driers to which the perithecia might adhere. It seems to us hardly probable that either of these suggestions would account for the presence of the perithecia which have been reported as occurring on *Fomes fomentarius*. It appears more probable that the perithecia become accidentally detached from plants growing in close proximity to the one on which they are reported. However, the fact of such accidental occurrence should impress upon collectors and authors the necessity of carefully guarding against such errors.

In his treatment of species, the author is very conservative. Saccardo in his "Sylloge Fungorum" recognizes 111 species and 1 variety, with 20 other "dubiae vel inquirendae." In the present monograph, but 49 species and 11 varieties are recognized. Of these, 3 species and 2 varieties are described as new. This is in rather striking contrast to the present tendency to multiply species. This broad conception of species we are inclined to attribute in large part to the close comparative study of a great abundance of material from various parts of the world. One can scarcely examine in an unprejudiced manner a large series of specimens of any group of plants without recognizing their great variability, and the indefiniteness of the dividing lines which necessitates a more or less arbitrary separation if any is to be made. A careful study of types or authentic specimens of many of the species of the older authors has cleared up numerous cases of doubtful identity and synonomy, and quotations of original descriptions from publications which are inaccessible to many students, give opportunity for judging the correctness of the author's interpretations. Citations of literature, exsiccatae and synonyms are unusually complete. The work is illustrated with nine plates, which add greatly to the value of the book. More careful and exact citations of the types of species in the cases in which such exist, would have increased the value of the work. This omission is particularly noticeable in the case of the new species described. The question of generic types is one which must also be met in the near future, if any great degree of stability or uniformity in nomenclature is to be secured. The work as a whole is most commendable, and must remain for a long time the authority on this group of fungi.—C. L. S.

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The *Asa Gray Bulletin*, a journal now in its eighth volume, discontinued publication with the December issue, and will henceforth be merged in THE PLANT WORLD. Mr. Cornelius L. Shear, formerly an editor of the *Bulletin*, has joined the editorial board of THE PLANT WORLD, and will have charge of the cryptogamic articles and the teachers' department. Former readers of the *Bulletin* will gain much by subscribing to THE PLANT WORLD for 1901.

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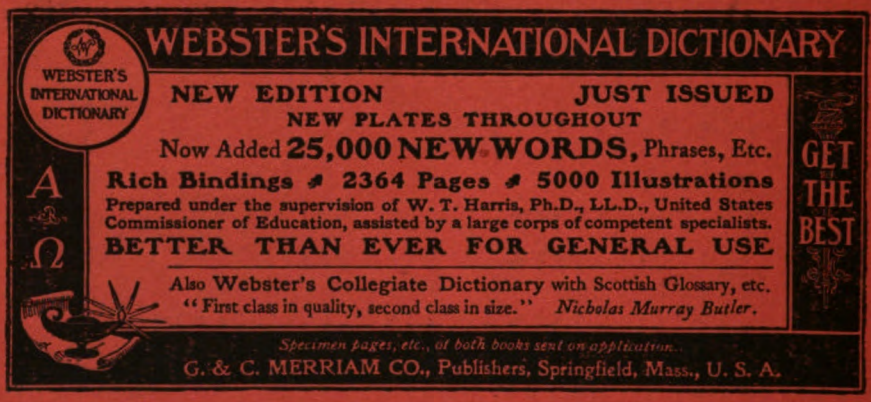
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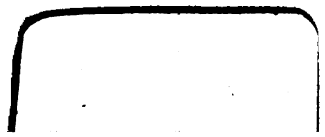

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